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EXAMINER

RODRIGUEZ, GLENDA P

ART UNIT PAPER NUMBER

2651

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/805,357

Applicant(s)

HATTORI ET AL.

Examiner

Glenda P. Rodriguez

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 19 is/are rejected.
- 7) ☒ Claim(s) 18 and 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/22/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Claim Objections

1. Claims 1-20 are objected to because of the following informalities: the usage of terms “parts/part” and “are/is” deems the Claim as indefinite. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 11-14, 16 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Moran et al. (US Patent No. 6, 738, 205).

Regarding Claim 1, Moran et al. teaches a magnetic recording medium comprising a magnetic layer which is sectioned into a plurality of data areas and a plurality of servo areas for information recording,

Wherein in each of the servo areas, the magnetic layer is separated into a plurality of servo pattern unit parts for forming a predetermined servo pattern and a plurality of servo pattern gap filling parts/a servo pattern gap filling part patterned to fill gaps between the plurality of servo pattern unit parts partly (See Fig. 8, wherein it teaches a servo pattern Element 45 and 49 wherein coarse and fine positioning data are therein which has its gaps filled in between these Elements

with servo timing information data Element 53. It can be observed that the timing data covers partly the servo pattern parts.).

Method of manufacturing claim (19) is drawn to the method of using the corresponding apparatus claimed in claim (1). Therefore method of manufacturing claim (19) corresponds to apparatus claim (1) and is rejected for the same reasons of anticipation as used above.

Regarding Claim 16, Moran et al. teach a magnetic recording medium comprising a magnetic layer, which is sectioned into a plurality of data areas and a plurality of servo areas for information wherein:

In each of the servo areas of the magnetic layer, the servo pattern unit parts for forming a predetermined servo pattern are separated in a direction vertical to the traveling direction of a write/read head (See Fig. 8, wherein it teaches a servo pattern Element 45 and Element 49 and it teaches the traveling direction of the head with respect to the disk, wherein it travels through separated servo patterns.).

Regarding Claims 2, Moran et al. teach all the limitations of Claim 1. Moran et al. teach wherein the servo patterns contain differing sizes (Elements 45 and 49 of Fig. 4A-4B teach coarse and fine positioning servo patterns).

Regarding Claim 11 and 12, Moran et al. teach all the limitations of Claims 1 and 2, respectively. Moran et al. further teach wherein the magnetic layer (which is inherent that magnetic data is written in a magnetic layer) is separated into a number of recording elements at fine track pitches in a direction vertical to the traveling direction of a write/read head (See Elements 45 and 49 of Fig. 4A-4B teach coarse and fine positioning servo patterns); and the

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servo pattern gap filling parts are patterned to lie at least in part near the data areas in the servo area (See Figs. 4A and 4B).

Regarding Claim 13, Moran et al. teach all the limitations of Claim 1. Moran et al. further teach wherein the servo pattern gap filling parts are formed smaller than the servo pattern unit parts (See Fig. 4A, wherein 45 is smaller than 53).

Regarding Claim 14, Moran et al. teach all the limitations of Claim 1. Moran et al. further teach wherein the servo pattern unit parts and the servo pattern gap filling parts are magnetized with opposite polarities (Col. 6, L. 1-8).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moran et al. (US Patent No. 6, 738, 205).

Regarding Claims 3 and 4, Moran et al. teach all the limitations of Claim 3. Moran et al. teach all the limitations of Claim 2. However, Moran et al. does not explicitly teach wherein the servo pattern gap filling parts are formed in different sizes so as to have different coercivities and anisotropies as the magnetic properties. It is obvious to a person of ordinary skill in the art to know that as the size of the pattern, the coercivity and anisotropies varies (e.g. data track with respect to servo track).

Regarding Claim 15, Moran et al. teach all the limitations of Claim 3. Moran et al. further teach wherein the servo pattern unit parts and the servo pattern gap filling parts are magnetized with opposite polarities (Col. 6, L. 1-8).

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moran et al. in view of Fukutani et al. (US Patent No. 6, 852, 431). Moran et al. teaches all the limitations of Claim 2. However, Moran et al. does not explicitly teach wherein the different sized patterns have different residual magnetic properties. Fukutani et al. teach this in Col. 5, L. 66 to Col. 6, L. 15. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Moran et al.'s invention with the teaching of Fukutani et al. in order to vary the coercive force in the magnetic cells as taught by Fukutani et al.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moran et al. in view of Hashimoto (US Patent No. 5, 231, 550). Moran et al. teach all the limitations of Claim 16. However, Moran et al. does not explicitly teach wherein the servo pattern unit parts are separated so as to have a length greater than or equal to a track width in a direction vertical to the traveling direction of a write/read head. This limitation is taught by Hashimoto in Figs. 3A to 3D and in Col. 7, L. 63 to Col. 8, L. 11. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Moran et al.'s invention with the teaching of Hashimoto in order to provide synchronization in the head.

8. Claims 6, 7, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moran et al. in view of Ogasawara et al. (US Patent No. 6, 466, 387). Moran et al. teaches all the limitations of Claims 1-4, respectively. However, Moran et al. does not explicitly teach wherein the servo pattern filling parts have a value closer to the ratio of the area of the recording

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elements. This limitation is taught by Ogasawara et al. in Figs. 5 and 6, wherein the servo burst A and the gap filled servo B have the same length as the head element presented. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Moran et al.'s invention with the teaching of Ogasawara et al. in order to prevent useless space in the disk as cited by Ogasawara et al. in the Abstract.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moran et al. and Fukutani et al. as applied to claim 5 above, and further in view of Ogasawara et al. (US Patent No. 6, 466, 387). The combination of Moran et al. and Fukutani et al. teach all the limitations of Claims 5. However, the combination does not explicitly teach wherein the servo pattern filling parts have a value closer to the ratio of the area of the recording elements. This limitation is taught by Ogasawara et al. in Figs. 5 and 6, wherein the servo burst A and the gap filled servo B have the same length as the head element presented. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify the combination's invention with the teaching of Ogasawara et al. in order to prevent useless space in the disk as cited by Ogasawara et al. in the Abstract.

Allowable Subject Matter

10. Claims 18 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

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Regarding Claim 18, the primary reason for allowable subject matter is the inclusion of the limitation wherein the servo pattern are separated so as to have a length greater than or equal to a track width, but no exceeding 0.2 mm.

Regarding Claim 20, the primary reason for allowable subject matter is the inclusion of the limitation wherein the magnetic layer processing step is followed by a first direct-current magnetic field applying step of applying a uniform direct-current magnetic field higher than the coercivities of both the servo pattern unit parts and the servo pattern gap filling parts to the magnetic layer, and a second direct-current magnetic field applying step of applying a uniform direct-current magnetic field having an intensity intermediate between the coercivity of the servo pattern unit parts and the coercivity of the servo pattern gap filling parts/part to the magnetic layer in a direction opposite to that of the foregoing direct-current magnetic field.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (571) 272-7561. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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11/07/05.


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